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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/632,232	07/31/2003	John E. Schreiber	Serie 6041	2544

7590 09/30/2004

Air Liquide  
Suite 1800  
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EXAMINER

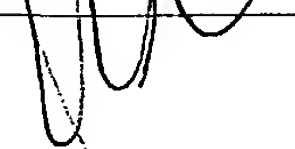
DOERRLER, WILLIAM CHARLES

ART UNIT PAPER NUMBER

3744

DATE MAILED: 09/30/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	Application No. 10/632,232	Applicant(s) SCHREIBER ET AL. 	
	Examiner William C Doerrler	Art Unit 3744	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-44 is/are pending in the application.  
     4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-44 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 31 July 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
     Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
     Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
     a) ☐ All    b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)  | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>5-7-2004</u> . | 6) <input type="checkbox"/> Other: ____.  |

## **DETAILED ACTION**

### ***Claim Rejections - 35 USC § 112***

Claims 3,4,13,18,37,38,43 and 44 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The term "optionally" in all of the above claims renders them pointless, since the limitations which follow need not be present if they are optional.

### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-4,9,10,14-18,27,28,31 and 32 are rejected under 35 U.S.C. 102(b) as being anticipated by McKee.

McKee shows a system for producing solid carbon dioxide with ozone dissolved in the carbon dioxide. In regard to the water content of the product, it is noted that in line 100 of page 2 that McKee uses "industrial carbon dioxide" which does not contain water, and no water is added in the disclosed steps. In regard to claim 10, line 75 of page 1 states that .01% of the solid produced is ozone. In regard to claim 27, line 97 of page 1 states that 10% of the oxygen stream used is converted to ozone prior to being absorbed into the carbon dioxide with the oxygen remaining as an "inert gas".

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 5-8, 11-13, 19-24, 26 and 29-44 are rejected under 35 U.S.C. 103(a) as being unpatentable over McKee.

McKee discloses the production of dry ice with entrained ozone. McKee does not state what form the dry ice is in or the use of the dry ice. However applicant's specification, specifically line 12 of page 12 and line 8 of page 3, state that "the form of blocks, pellets, flakes, powders, and other possible forms (are) well known in the art" (the are being added) and that carbon dioxide is "frequently used as an expendable refrigerant", respectively. It therefore would have been obvious to one of ordinary skill in the art at the time of applicants' invention to use the device of McKee to produce dry ice in blocks, pellets, flakes or powders to provide cooling to perishable items to ensure a high quality

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product that is free of odors. In regard to claims 11 and 41, the use of less ozone is seen as a matter of obvious design choice for an ordinary practitioner in the art depending on the intended use and duration thereof. In regard to claim 22, the use of a lower pressure is also seen as a matter of design choice for an ordinary practitioner in the art to maximize the economy of the process (i.e. lower pressures are easier to obtain).

Claim 25 is rejected under 35 U.S.C. 103(a) as being unpatentable over McKee in view of Kiyonaga et al.

McKee discloses applicants' basic inventive concept, injecting ozone into carbon dioxide before freezing the mixture, substantially as claimed with the exception of injecting the ozone into an expanding stream of liquid. Kiyonaga et al show the injection of a gas into an expanding stream of liquid to be old in the injection and fluid mixing art. It would have been obvious to one of ordinary skill in the art at the time of applicants' invention from the teaching of Kiyonaga et al to modify the process of McKee by injecting the ozone into the liquid carbon dioxide where the carbon dioxide expands to improve the fluid mixing and absorption of the gas into the liquid.

### ***Conclusion***

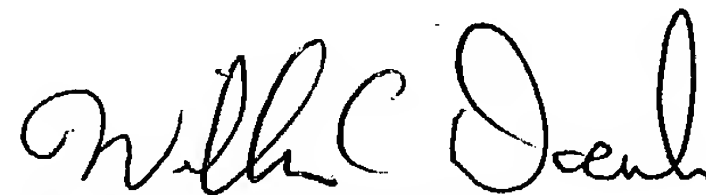
The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Hyde shows an extruder for making different shapes of dry ice. Yuan, Yousef et al and Mitsuda et al show sterilizing food using a mixture of carbon dioxide and ozone.

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to William C Doerrler whose telephone number is (703) 308-0696. The examiner can normally be reached on Monday-Friday 6:30-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Denise Esquivel can be reached on (703) 308-2597. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



William C Doerrler  
Primary Examiner  
Art Unit 3744

WCD